

Client's ref. :A91116/03-11-03  
Our ref: 0535-8692us/final/Ellen/Kevin

**What is claimed is:**

1        1.    A method for changing a rotational speed of an  
2 optical drive comprising:

3        detecting a reading speed for a software processing  
4                data from a disc in the optical drive;

5        determining whether the reading speed corresponding to  
6                a rotational speed of the optical drive exceeds a  
7                critical speed, wherein the critical speed is less  
8                than the lowest rotational speed of the optical  
9                drive to process a read command and exceeding a  
10               reading speed for the optical drive to process a  
11               play command; and

12       changing the rotational speed of the optical drive  
13               according to the determined result of the reading  
14               speed and the critical speed.

1        2.    The method as claimed in claim 1, wherein the  
2 changing step comprises:

3        when the reading speed corresponding to the rotational  
4                speed of the optical drive exceeds the critical  
5                speed, changing the rotational speed of the  
6                optical drive to a high speed; and

7        when the reading speed corresponding to a rotational  
8                speed of the optical drive is less than the  
9                critical speed, changing the rotational speed of  
10               the optical drive to a low speed.

1        3.    The method as claimed in claim 1, wherein the  
2 determining step further comprises:

3       calculating a number of frames read in a predetermined  
4       period; and  
5       according to the amount, calculating the relationship  
6       between the reading speed and the rotational speed  
7       of the optical drive.

1       4.   The method as claimed in claim 3, wherein when the  
2   number of frames is 75 and the predetermined period is 1  
3   second, the reading speed is equal to 1 times the rotational  
4   speed of the CD ROM drive.

1       5.   The method as claimed in claim 3 further  
2   comprising:

3       determining whether the two continuous frames comprise  
4       two continuous data according to addresses of the  
5       optical drive where the frame read the data;  
6       when the continuous frames do not comprise continuous  
7       data, resetting the number of frames read and the  
8       predetermined period.

1       6.   The method as claimed in claim 2, wherein when the  
2   optical drive reads an audio disc, the high speed is 10~24 X  
3   CAV (Constant Angular Velocity) wherein the rotational speed  
4   on the maximum circle of the optical drive is 24X CAV and on  
5   the minimum circle of the optical drive is 10X CAV and the  
6   low speed is 2~5 X CAV wherein the rotational speed on the  
7   maximum circle of the optical drive is 5X CAV and on the  
8   minimum circle of the optical drive is 2X CAV.

1       7.   The method as claimed in claim 2, wherein when the  
2   optical drive reads a video compact disc, the high speed is

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3 10~24 X CAV wherein the rotational speed on the maximum  
4 circle of the optical drive is 24X CAV and on the minimum  
5 circle of the optical drive is 10X CAV and the low speed is  
6 2~5 X CAV wherein the rotational speed on the maximum circle  
7 of the optical drive is 5X CAV and on the minimum circle of  
8 the optical drive is 2X CAV.

1 8. The method as claimed in claim 1, wherein the  
2 reading speed for the optical drive to process the play  
3 command is 1X.

1 9. The method as claimed in claim 1, wherein the  
2 lowest rotational speed of the optical drive to process the  
3 read command is 2X.

1 10. A optical drive with switchable rotational speeds,  
2 the optical drive controlled by a software, comprising:  
3 a read module for reading a disk;  
4 an motor module loaded with the disc for rotating the  
5 disk at a rotational speed; and  
6 a control module coupled to the motor module for  
7 detecting a reading speed for the software  
8 processing data from the disc, determining whether  
9 the reading speed corresponding to a rotational  
10 speed of the optical drive exceeds a critical  
11 speed and changing the rotational speed of the  
12 optical drive according to the determined result  
13 of the reading speed and the critical speed;  
14 wherein the critical speed is less than the lowest  
15 rotational speed of the optical drive to process a

16 read command and exceeding a reading speed for the  
17 optical drive to process a play command.

1 11. The optical driver as claimed in claim 10, wherein  
2 when the reading speed corresponding to the rotational speed  
3 of the optical drive exceeds the critical speed, the control  
4 module changes the rotational speed of the optical drive to  
5 a high speed and when the reading speed corresponding to the  
6 rotational speed of the optical drive is less than the  
7 critical speed, the control module changes the rotational  
8 speed of the optical drive to a low speed.

1 12. The optical driver as claimed in claim 10, wherein  
2 when the optical drive reads an audio disc, the high speed  
3 is 10~24 X CAV (Constant Angular Velocity) wherein the  
4 rotational speed on the maximum circle of the optical drive  
5 is 24X CAV and on the minimum circle of the optical drive is  
6 10X CAV and the low speed is 2~5 X CAV wherein the  
7 rotational speed on the maximum circle of the optical drive  
8 is 5X CAV and on the minimum circle of the optical drive is  
9 2X CAV.

1 13. The optical driver as claimed in claim 10, wherein  
2 when the optical drive reads a video compact disc, the high  
3 speed is 10~24 X CAV wherein the rotational speed on the  
4 maximum circle of the optical drive is 24X CAV and on the  
5 minimum circle of the optical drive is 10X CAV and the low  
6 speed is 2~5 X CAV wherein the rotational speed on the  
7 maximum circle of the optical drive is 5X CAV and on the  
8 minimum circle of the optical drive is 2X CAV.

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1        14. The optical driver as claimed in claim 10 wherein  
2 the reading speed for the optical drive to process the play  
3 command is 1X.

      15. The optical driver as claimed in claim 10 wherein  
5 the lowest rotational speed of the optical drive to process  
the read command is 2X.